

thoroughness of the Examiner's review. A more detailed summary of the subject matter of the interview is reflected in the remarks below.

Claims 1-27, including amended claims 1 and 18 and new claims 23-27, now appear in this application for the Examiner's review and consideration. The claims have been amended to more clearly define the scope of protection sought by the present application and to more particularly point out the subject matter the Applicants regard as their invention. In particular, Applicants amended claims 1 and 18 to clarify that the outer cover layer is made from a castable reactive liquid material. Applicants also amended claims 1 and 18 in response to the Examiner's objections regarding the term "solid core outer layer". As the amendments do not introduce any new matter, their entry at this time is warranted.

Brief Description of the Claimed Invention

The presently claimed golf ball, as set forth, for example, in independent claims 1 and 18, has a softer outer cover layer made from a castable reactive liquid material disposed about a harder inner cover layer and a core. Castable reactive materials are different from conventional golf ball cover materials because they are the product of the reaction of a prepolymer with a curing agent, as explained in pages 8 and 9 of the specification. A catalyst also may be employed to promote the reaction between the curing agent and the prepolymer.

One of the advantages to using a castable reactive liquid to form the outer cover layer is that it can be made very thin. One result of using a thin outer cover layer is that even with a very soft outer layer the initial velocity of the ball upon impact is not substantially decreased and driver spin remains low. However, the outer cover material allows for high spin and soft feel characteristics similar to that of a traditional soft covered wound ball when struck with a club with a low head speed or high loft angle. Thus, the presently claimed golf ball provides the opportunity to enjoy the "best of both worlds" in the golf ball art by having the characteristics of a maximum distance ball during long shots and high spin and controllability during short shots.

As explained in the specification, it is important that the outer cover layer is thin in order to achieve these desirable progressive performance characteristics from driver to wedge. For instance, a thick outer cover layer will have the undesirable result of having a greater contribution to the in-flight characteristics of the ball when struck with a high club head

speed and low loft angle, such as that of a driver. Furthermore, forming a thin outer cover layer using conventional injection molding or compression molding techniques would be substantially more difficult and/or time consuming for forming such thin outer layers. The use of castable reactive materials for forming the outer cover layer as described in the present invention, however, makes it possible to form a thin outer layer more easily.

Moreover, the use of a multi-layer core in combination with a multi-layer cover allows for even greater control of the overall performance characteristics of the ball. Changing the material properties of the center or additional core layers, such as altering the compressibility or specific gravity of the materials for example, could affect the spin characteristics of the ball without redesign of the multi-layer cover.

THE REJECTIONS UNDER 35 U.S.C. § 103(a)

The Rejection Based Upon Melvin In View Of Cavallaro

The Examiner rejected claims 1-22 as unpatentable over U.S. Patent No. 5,779,562 to Melvin in view of U.S. Patent 5,813,923 to Cavallaro for the reasons given on pages 2-3 of the Office Action. Applicants respectfully traverse this rejection.

In addition to the Examiner's correct finding that Melvin '562 fails to disclose a flexural modulus for the inner cover layer, Melvin '562 also does not disclose or suggest the use of castable reactive liquid materials to form the outer cover layer. In fact, Melvin explicitly teaches to use conventional compression molding or injection molding to form this layer. *See col. 20, lines 3-6.* By the present invention, Applicants have avoided the manufacturing pitfalls that result from using the conventional outer cover layer materials and molding techniques taught by Melvin. The use of castable reactive liquid materials to form the outer cover layer avoids the difficult and time consuming measures that must be taken to form such a thin outer layer by compression molding or injection molding. Melvin, however, does not teach or even suggest the use of castable reactive liquid materials.

Furthermore, one skilled in the art would be discouraged from combining Melvin with Cavallaro as the contradictory teachings of the two references are irreconcilable. For instance, Cavallaro explicitly contradicts the teaching of Melvin by disclosing a preference for a hard cover for the ball, having a flexural modulus greater than 75 ksi (*see col. 12, lines 51-52*) over a soft mantle layer having a flexural modulus not greater than 50 ksi and more

preferably less than 10 ksi (*see* col. 14, lines 6-18). Thus, Cavallaro discloses the opposite of a soft outer cover layer and harder inner cover layer of the present invention. Thus, one skilled in the art would not even be motivated to combine Melvin with Cavallaro. Even if one were to substitute the hard cover layer of Cavallaro for the soft cover layer of Melvin, however, the result would be completely different from the present invention.

As discussed in the interview, one ball made by Titleist, the "Professional 90", which is described by U.S. Patent No. 5,733,428 discussed on page 14 of the specification (a copy of which also has been submitted in a Information Disclosure Statement submitted herewith), used a castable reactive liquid material to form a cover of a golf ball. As described by U.S. Patent No. 5,733,428, however, the Professional 90 ball utilized a castable reactive material for the cover that is harder than the latex layer beneath it. Thus, this reference is opposite the present invention like Cavallaro discussed above and one skilled in the art would have no motivation to combine the disclosure of Melvin with the contradictory disclosure of the '428 patent.

Therefore, Applicants respectfully submit that this rejection under 35 U.S.C. § 103 has been overcome.

Finally, Applicants note that all of the elements of the independent claims in the present application are fully supported by the disclosure of U.S. application No. 08/863,788, filed May 27, 1997, which issued as U.S. Patent No. 5,885,172 on March 23, 1999. Thus, Applicants are entitled to the priority date of this earlier filed application. Consequently, Applicants reserve the right to swear behind the priority date of Melvin to eliminate it as grounds for rejecting claims in the present application.

The Rejection Based Upon Melvin In View Of Cavallaro and Tanaka

The Examiner also rejected claim 15 as unpatentable over Melvin '562 in view of Cavallaro '923 and U.S. Patent No. 5,663,235 to Tanaka for the reasons given on page 3 of the Office Action. Applicants respectfully traverse.

First, in order for this combination of references to render dependent claim 15 unpatentable, the combination must also render independent claim 1 unpatentable as well. But these three references, alone or in any combination, fail to even disclose or suggest the

present invention of claim 1. Therefore, the combination of these references do not render claim 15 obvious.

First, for the reasons stated above, there is no motivation to combine Melvin with Cavallaro, but even if there were the result would be different from the present invention because the outer cover layer material disclosed in Cavallaro is hard while the mantle layer is soft. Second, Tanaka '235 does not change this result because it is even more remote in relevance to the present invention, particularly with respect to dependent claim 15.

Tanaka '235 is not directed to a multilayer cover. Instead, Tanaka '235 is directed toward blended resins used to form what is otherwise a conventional golf ball made by conventional methods. *See, e.g.*, col. 2, lines 33-63 (summary of invention) and col. 14, lines 43-47 (claim 1). The single layer cover of Tanaka, for instance, is made by the conventional methods of either compression molding two half-shells of cover material around a core (*see* col. 8, lines 10-14) or injection molding (*see* col. 12, lines 61-65). As a result, Tanaka also fails to disclose or even make suggest the combination of an outer cover layer made from a castable reactive liquid having a shore D hardness less than an inner layer of ionomer material. Moreover, claim 15 of the present invention is directed to further defining the amount of balata in the core of the ball while Tanaka concerns an improvement relating to the cover so that the cover feels like balata.

In sum, there is nothing disclosed or suggested by Melvin, Cavallaro, Tanaka, or any combination of these references, that would render claim 1 unpatentable. Therefore, the claims that depend from claim 1, including claim 15, also are patentable over these references. Therefore, this rejection is also respectfully traversed.

CONCLUSION

For the reasons stated above, the Applicants respectfully submit that the Examiner's rejection of claims 1-22 under 35 U.S.C. § 103 have been overcome and that the rejections should be withdrawn. As discussed in the interview, the Applicants believe that each of the independent claims and the dependent claims are patentable based on the totality of the claimed inventions therein. Accordingly, it is believed that claims 1-27 are now in condition for allowance, early notice of which would be appreciated.

Should the Examiner not agree that all claims are allowable, then a personal or telephonic interview is respectfully requested to discuss any remaining issues and accelerate the eventual allowance of this application.

4/5/00
Date

Respectfully submitted,


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